FIGURE 3

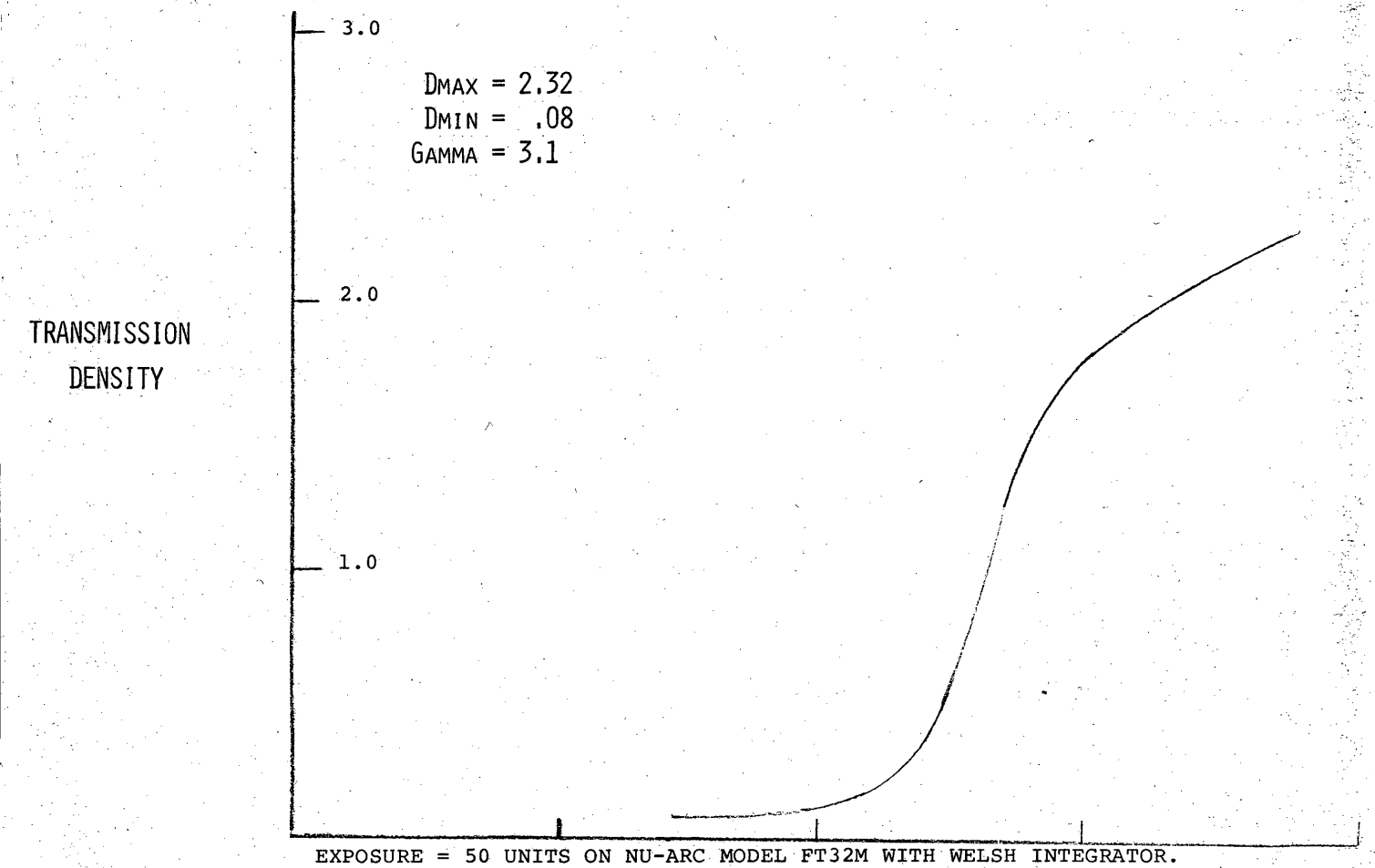


FIGURE 4 - DLOG E CURVE FOR 3M BRAND TYPE 796 DRY SILVER FILM.

or fixing the product.

The processor for these materials to be installed in place of the ammonia developer system will be a simple low maintenance oven type design based on a similar device which 3M Company has developed for commercial purposes. This processor was developed prior to and independently of this project and no rights, expressed or implied, are granted the government as a result of its use in this device.

This processor uses two parallel, opposed heating plates with a support for the film between them in such a fashion that the film is never touched by the heaters. No moving parts or blowers are used in its construction thus both noise and maintenance are held to a minimum. To use the device, the operator simply raises the cover, places the sheet of film on the film holder, closes the cover, waits a specified period of time and opens the cover to remove the finished print. A timer is furnished that produces an audible signal when processing has been completed. This processor design is intended for Type 788 Film and will produce excellent quality imagery with it. Type 796 Film, however, is more critical in its development at this experimental stage and may show some minor development patterns. This processor combined with the print media discussed previously gives a system that is compact, low maintenance, and simple to use that will correct the problems of the existing ammonia diazo system.

The second area for modification in the RIPP Table is the exposure system. This unit has been deficient in pressure uniformity and illumination uniformity which has resulted in uneven resolution and density.

Now

The pressure uniformity will be corrected by the use of a low pressure air bag to replace the foam pad currently being used. A positive latching, one hand operation locking device will force the bag down and hold it in place.

acceptance Test

The uniformity of illumination will be improved by the use of a point light source at a distance from the exposure plane. This will also increase average resolution to 200 cy/mm or greater.

acc. Test

An extensive investigation of light sources will be made to find the source that offers the best compromise in the areas of power requirement, heat level while running, compactness, cost, and the ability to be turned on and off for accurate exposure timing to eliminate the need for a shutter. Sources to be investigated will include mercury arc, Xenon, and other sources rich in the ultraviolet region of the spectrum.

Eng. Tests

Power
Heat in Printer
Heat in Processor.

IV. Work Statement

3M Company will exert its best efforts to modify the CBS - RIPP Table that is presently being furnished 3M as GFE to include the following items:

1. A low pressure inflated air bag will be substituted for the foam pad used for applying pressure during exposure.
2. A new processor module will be permanently affixed to the table for processing 3M Brand Type 788 and Type 796 dry processing materials.
3. A new exposure system will be provided to give better uniformity of illumination and higher resolution.
4. The control panel will be modified to accomodate the new functions necessary.
5. The existing exposure light source, pressure system and ammonia processor will be removed from the table and returned to the customer or discarded, as required.
6. Image format shall be 9½" square. 9½ inch square or 9½" x 10½" film will be useable on the device.
7. Average system resolution with Type 788 over the 9½" format shall be 200 cy/mm or greater from a 17 target array of negative USAF 1951 high contrast test targets which is included in the proposed effort.
8. Design goal for uniformity of illumination shall be no more than 10% falloff from center to corner. Less than 20% shall be guaranteed.

9. Exposure time shall be no longer than 90 seconds to a 1.0 average density original. 4 Test

10. Processing time in the range of 1 to 2 minutes is acceptable. 4 Test

11. Temperature adjustment shall be an internal control, accessible without disassembling machine.

12. A manually set timer with an audible signal will be furnished for determining processing time. check INTENSITY & FREQUENCY

13. Power requirements shall be kept as low as possible, preferably below 20 amps at 120 VAC. Test

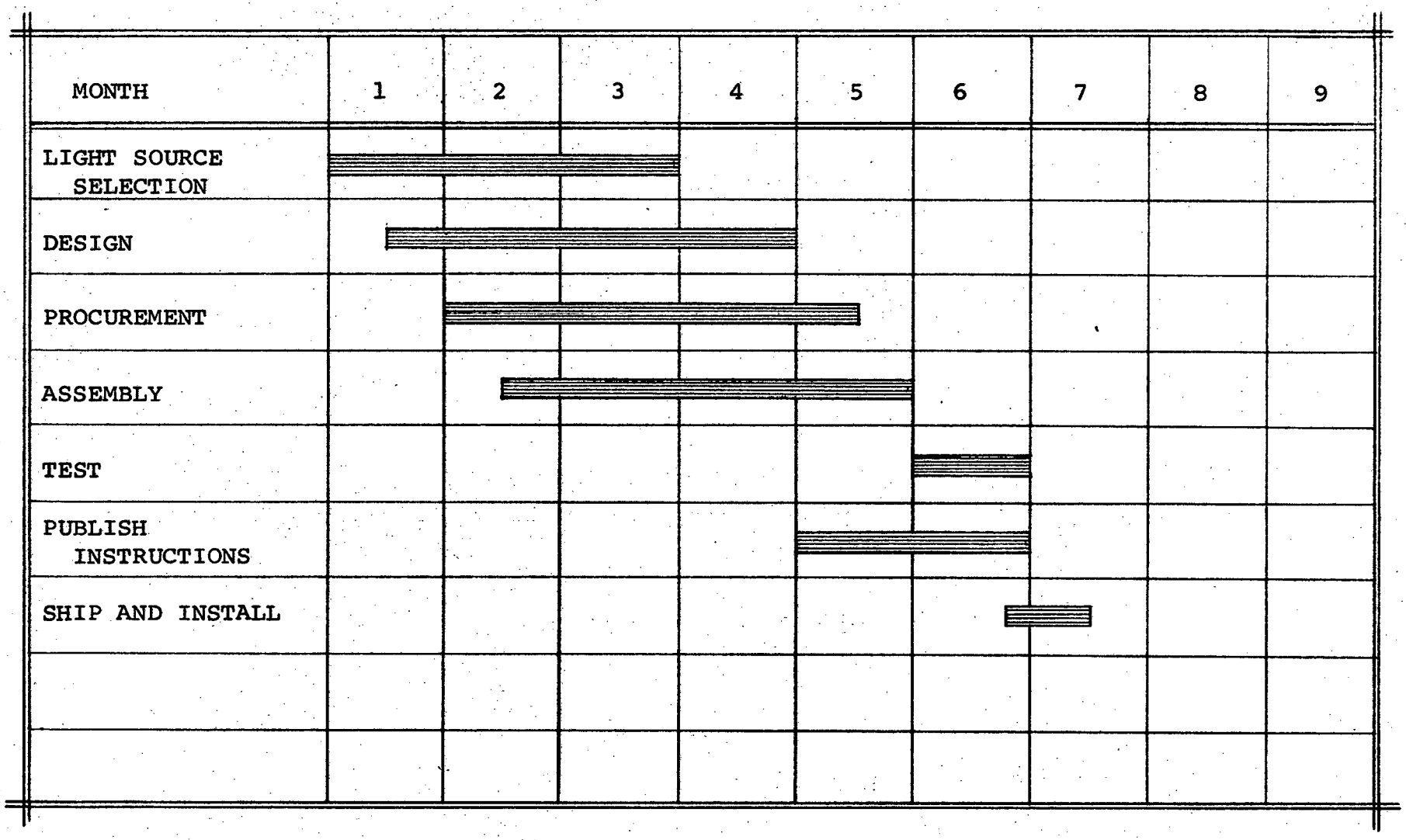
14. Existing controls for viewing portions of table will be kept.

Target date for delivery of this developmental model is six months after acceptance of a formal contract by the 3M Company. Delivery will also include instructions for installation and operation, a critical spare parts list and electrical schematics of the processor module for the added items only. The work will be performed on a Cost plus Fixed Fee basis in accordance with the price set forth in the cover letter.

It is to be understood that any contract resulting from this proposal will not include research or development work on reproduction media, such as Dry Silver Film or the processes for making reproductions. That work effort which is proposed herein is based upon existing 3M

Technology. Accordingly, no rights will be granted to the Government under any of the 3M Company's background patents now owned or hereafter acquired by 3M Company or 3M Company's proprietary information concerning materials, reproduction processes or machines.

It is anticipated that Armed Services Procurement Regulations which would protect the 3M Company's proprietary position will be included in any contract which may result from this proposal. Additional information on costs and scheduling is given in the Time Bar Chart (Figure 5) and the Cost Completion Schedule (Figure 6).



TIME BAR CHART

Figure 5.

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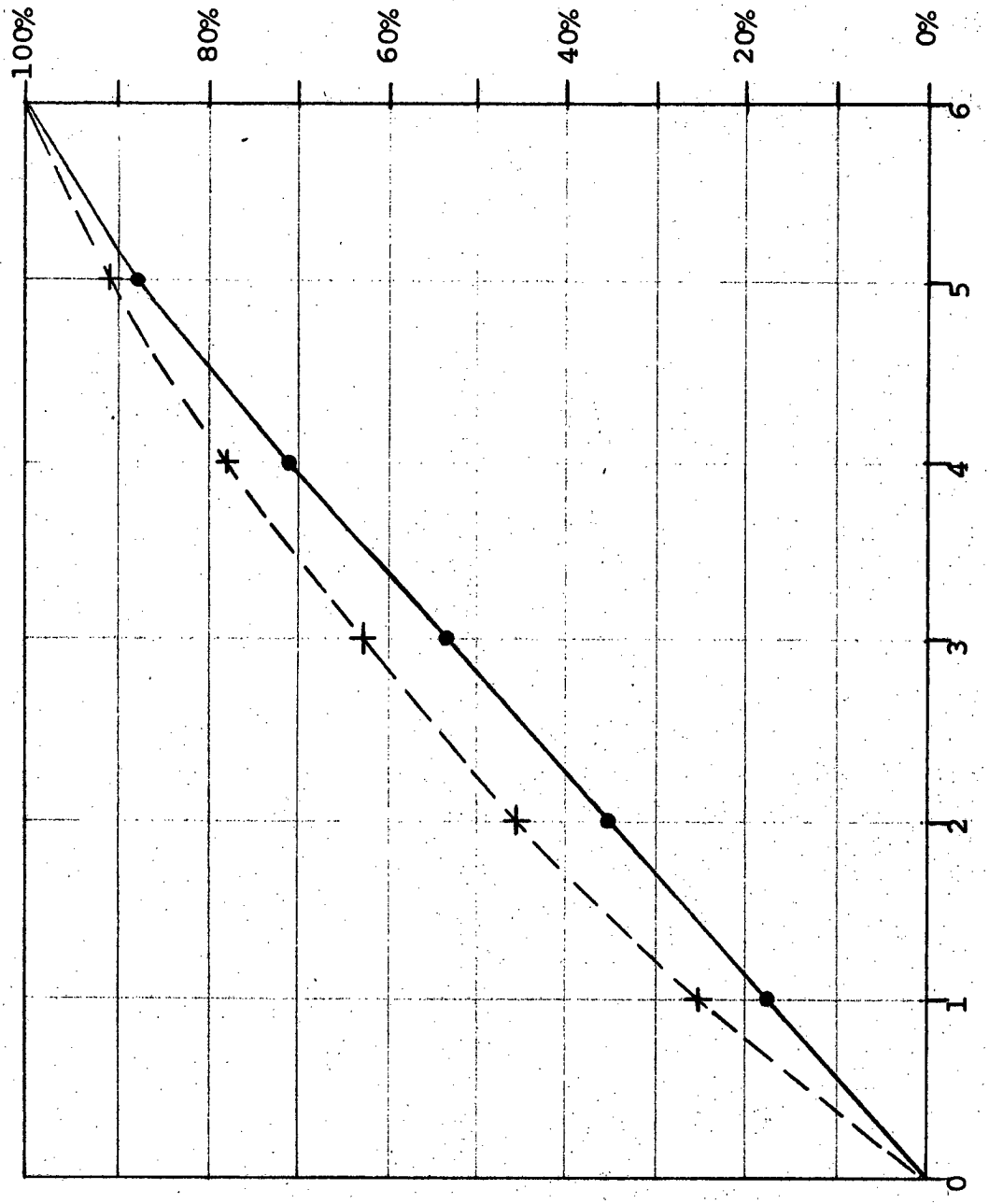

Figure 6.

IV. Deliverable Items

1. Equipment to be delivered on this contract shall be one developmental model modified RIPP Table as detailed in the work statement.

2. Three copies of a brief operator and maintenance manual shall be delivered at the same time as the machine.

3. Drawings as generated in the building of the machine shall be available.